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CONTRIBUTIONS FROM THE ARMY MEDICAL MUSEUM, WASHINGTON.

BY GEORGE A. OTIS, M. D.,

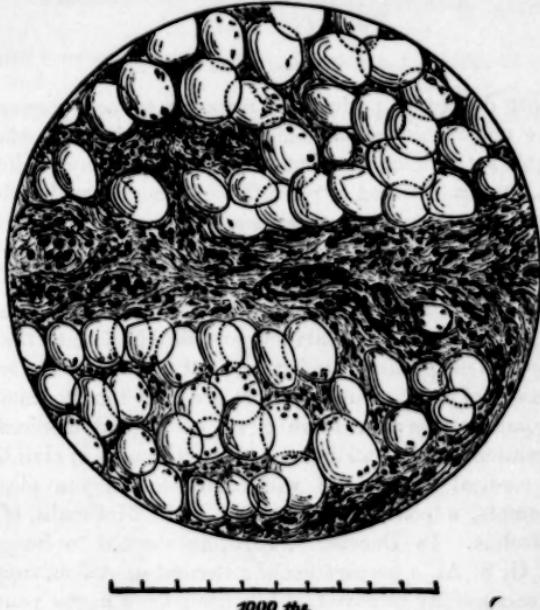
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I CANNOT do better, perhaps, in response to your request, than improve the opportunity of beginning to acknowledge publicly some of the valuable pathological material for which the Army Medical Museum at Washington is indebted to practitioners unconnected with the army. The descriptions of such contributions are recorded in the manuscript registers of the museum, when the specimens are mounted and placed on the shelves, and eventually abstracts of them will appear in printed catalogues. But the last printed catalogue of the surgical section of the museum is already ten years old, and in this decade the number of surgical specimens has increased from 4719 to 6748. The more important donations of army medical officers are from time to time mentioned in official publications; but there is no convenient medium for calling public attention to the contributions of practitioners in civil life save the pages of medical journals. I will commence, if you please, with a single example, a contribution by Dr. J. P. McCombs, of Charlotte, North Carolina. In December, 1876, he showed to Surgeon W. H. Forwood, U. S. A., a preparation of a visceral extrusion, supposed to be a spleen, successfully removed by ligature from a negro youth who had been stabbed in the left hypochondriac region, and at Dr. Forwood's instance transmitted the preparation to Washington, with the following history:—

"History of a Case of Complete Extrusion of the Spleen from an Incised Wound, with Ligation and Removal of the same, with Recovery. To accompany a Specimen forwarded to the Army Medical Museum.—On October 7, 1874, I was called fourteen miles in the country to see Wallace Fox (colored), aged twenty-two, who was wounded with a pocket-knife in a fight at a camp-meeting on October 3d. On examination I found an incised wound about an inch long over the region of the spleen below the ribs, with the spleen entirely protruded, strangulated, and in a free state of suppuration over the entire surface. There was constipation and inability to retain anything on the stomach, and many symptoms of strangulation of the bowels. I applied a ligature around the spleen near the wound, and afterwards removed the spleen entire, drew out the omentum, relieved the strangulation, and found no disposition to hemorrhage. I then carefully returned the omentum into the abdominal cavity, and closed the wound with two silk sutures and adhesive straps, and applied cold—

water dressing. I administered an opiate, with instructions to keep him quiet with opiates for three days, and then to give a dose of castor-oil. He was going about in four days, and came to Charlotte to see me ten days after the operation. He still had pain and tenderness over the region of the wound. He made a rapid recovery, and twenty-six months after the operation was a healthy man. He has never had a day's sickness since, and none of his organs are the least impaired."

There are numerous instances recorded in surgical annals of the successful enucleation or excision of visceral protrusions after incised wounds of the abdomen, in which the parts extruded were supposed to be a portion of one of the solid viscera, the spleen, liver, kidney, the pancreas even, when it was found on inspection that the tissue really removed was simply congested and inflamed omentum. Examples may be found in the writings of Schenckius,



Stalpart Van der Weil, Dr. Paul F. Eve, and most of the compilers of rare cases. In the foot-notes to the sixth chapter of the surgical volume of Part II. of the Medical and Surgical History of the War of the Rebellion, I have cited references to many such cases. The specimen forwarded to the museum by Dr. McCombs had been preserved in alcohol, and its external appearance closely resembled a spleen. It was of a mottled-purplish color, lobulated, with a peritoneal investment, and weighed a little less than three ounces. On making an incision into it, however, not a trace of fibrous elastic coat, or trabecula, or Malpighian corpuscles was to be discovered. Several sections from different parts of the specimen were prepared for microscopic examination, and were nearly uniform in appearance. The preparer, Dr. J. C. McConnell, made a camera-lucida drawing of one of the slides, which is accurately reproduced in the wood-cut. My colleague, Surgeon J. J. Woodward, whose com-

petency is unquestioned, has had the kindness to furnish the following description of the section, which is numbered 7214 in the microscopical cabinet of the museum:—

"The specimen proved on examination to be a portion of omentum in an inflamed condition. Thin sections showed the characteristic large adipose cells grouped in lobules united together by connective tissue. Both the connective tissue between the lobules and the homogenous cementum between the individual adipose cells were infiltrated with numerous small granular cells (lymphoid elements, leucocytes), such as invade the tissues during the inflammatory process. The wood-cut represents portions of two adjoining fat lobules united by a rather broad lamina of connective tissue in which, as well as between the individual fat cells, the small granular cells are shown as they appeared in the specimen after hardening with alcohol."

I sent a duplicate slide to Dr. McCombs, who, in a letter dated Charlotte, February 20, 1877, remarked: "When the tumor was removed it would have weighed six or seven ounces. It was preserved in a quinine bottle, in pure alcohol, which evaporated several times, leaving the tumor dry, which perhaps accounts for its weighing no more than it did. A small portion of omentum was removed with the tumor. There is no objection to your publishing the case, with any remarks you may see fit to make." The tumor is preserved as specimen 6720, section I, in the Army Medical Museum.

TWO SUCCESSFUL CASES OF OVARIOTOMY.

BY GEORGE W. GAY, M. D.

Surgeon to the Boston City Hospital.

CASE I. On Saturday, October 30, 1875, Mrs. X., a widow, aged fifty-nine years, was brought to the writer by Dr. E. B. Harvey, of Westborough, for an abdominal enlargement of four years' duration. Her menses ceased five years ago. She had been a widow over twenty years, and had good health until the present trouble began.

Her abdomen was large, prominent, soft, and smooth. Fluctuation was distinct between points six inches on each side of the umbilicus, and from the pubes to the ensiform cartilage. Resonance was dull everywhere except on the left side and below the sternum. Umbilicus depressed; veins of abdomen not prominent. The abdomen was not tender, and she has never had much pain. The uterus was movable to a certain extent, and high up in the pelvis; no haemorrhage, nor vaginal discharge of any kind. Her digestive organs were in good order, and her urine was alternately free and scanty. Although she was as large as a woman at full term of pregnancy, yet she could walk a mile easily, and was able to enjoy life. She was therefore advised to wait until her burden was heavier to bear before undertaking the risks of an operation.

The patient passed a comfortable winter among her friends, and came to Boston to a private house the last week in April, ready and anxious for radical measures.

She was considerably larger than in the autumn, being forty-five inches in circumference. The distance from the pubes to the ensiform cartilage was nineteen inches, and to the umbilicus ten inches. Two distinct cysts could be made out by palpation and percussion, the smaller one lying on the right side of the abdomen.

Dr. Cheever saw the patient, and agreed with me that the disease was ovarian; that there were at least two cysts; that there were probably few or no adhesions in front, and that it was a favorable case for operation. The patient was kept in bed a few days before the operation, partly to accustom her to the confinement, and partly to allay a slight cough.

Ovariectomy was performed on Thursday, May 4, 1876, Drs. Cheever, Thorndike, and Harvey assisting. The patient was hopeful, and got upon the table and took the ether very quietly. The larger cyst was exposed by an incision about five inches long, on the median line, emptied with a Wells trocar, and drawn out enough to expose the smaller cyst, which was treated in the same manner. The mass was then lifted from the abdominal cavity. There was no pedicle, but the base of the tumor was firmly adherent to the fundus of the uterus, and to the brim of the true pelvis on the right side as far as the sacro-iliac articulation. The line of attachment was fully eight inches in extent. An attempt was made to enucleate the sac, but as this gave rise to haemorrhage, and, moreover, was attended with great difficulty, it was abandoned. A portion of the broad ligament was tied with a strong catgut ligature, and the ends cut short. Wells's largest clamp was then applied to the cyst as near the base as possible, and the tumor cut away, thereby leaving quite a large piece of the cyst-wall in the abdomen. The cysts contained thirty pints of the ordinary ovarian fluid.

Her pulse was 72 before and after the operation, but was weaker after it. She rallied well from the ether, and did not vomit. There was not much shock or pain.

She got nothing but small quantities of ice and toast water, and a suppository containing a grain and a half of opium every six hours for twenty-four hours, after which time she was gradually put upon beef tea, milk, champagne, and soda water. She was troubled considerably with tympanites, and had some cystitis, although the urine was drawn every four hours. The bowels moved in ten days, when the accumulation passed off by several copious stools, producing considerable prostration.

The clamp came away in eighteen days, leaving only the stump of the growth to heal over, as the abdominal wound healed by first intention. Nothing was ever seen of the catgut ligature. Suppuration was at no time profuse.

She went to her home in the country in less than eight weeks after

the operation, able to walk quite well. On a recent visit to the city the patient assured us that she never felt so well in all her life. She wears a bandage, but there is as yet no sign of a hernia in the track of the wound.

So far as we know, the application of a clamp to the base of an ovarian cyst which has no pedicle is not common. Several methods of securing the vessels in these cases present themselves to our notice, among which are the following:—

First, enucleation. This is practicable in some instances, but by no means in all.

Second, ligature. Catgut is the only ligature we should dare to leave shut up in the peritoneal cavity. Moreover, there is some danger of haemorrhage between the sections inclosed in the ligature, as well as from the softening and slipping of the substance itself.

Third, actual cautery. Mr. Keith, of Edinburgh, has used this method in fifty cases with forty-six recoveries. In his hands it might succeed in the class of cases under consideration.

Fourth, écraseur. This method is neither safe nor practicable.

Fifth, the clamp. The advantages of this instrument are, that it controls the haemorrhage effectually, and that it is easily and quickly applied. The disadvantages are, that the wound may be a long time in healing should the mass inclosed in the clamp be large, and that the cyst cavity may suppurate profusely. Time is an important element in this as in all capital operations, and probably most surgeons have seen ovariectomies in which the scale seemed to have been turned against the patient by long exposure of the peritoneum in the efforts to check haemorrhage from wounded vessels. Hence it seems to me that the objections to the clamp in these cases are more than counterbalanced by its advantages. This method has proved successful in the practice of Drs. Cheever and Thorndike, each of whom has had a case of ovariectomy recover under this method of securing the vessels.

We therefore submit it to all operators who have not the wonderful skill of Spencer Wells, that the method used in the above case is worthy of further trial.

CASE II. Miss M., twenty-five years of age, born in Nova Scotia, first noticed an enlargement in the lower part of the abdomen in the spring of 1875. She entered the City Hospital in May, 1876. She then presented the appearance of a woman in the fifth month of pregnancy. The menses were regular, and the tumor seemed to enlarge during those periods.

On the 12th of the following June the growth extended as high as the umbilicus, and was soft and distinctly fluctuating. Two thirds of it lay to the left of the median line. The os uteri was high and pushed to the right side of the pelvis. Palpation upon the abdomen was distinctly felt at the cervix.

The tumor was punctured above the pubes with the aspirator by Dr. Arnold, and twelve ounces of fluid resembling pea-soup were evacuated. On cooling, a layer of fat an inch thick formed on top. A number of hairs about two inches long were found in the liquid, and on withdrawing the needle a hair a foot in length came from the wound.

The patient was somewhat benefited by the operation, and, moreover, it confirmed the diagnosis of ovarian disease and showed it to be of the dermoid variety.

In August Dr. Draper placed her under our charge. She was in a comfortable condition at that time, had fair strength, flesh, and appetite, and the abdomen was not very large. She was advised to wait for cool weather before submitting to an operation.

Early in October this patient returned to the hospital, and desired to have the growth removed, saying that she was of no use to herself nor any one else, and was gradually growing larger and having more discomfort, both mental and physical. Her girth was thirty-four inches, and from the pubes to the umbilicus it was seven and a half inches.

The tumor was situated in the middle of the abdomen. It was smooth, elastic, slightly movable, oval in outline, dull upon percussion, not fluctuating, and reaching to or a little above the umbilicus. Her appetite was fair, bowels regular, and urine moderately free.

The operation for the removal of the tumor was done by the writer, at the hospital, on Friday, October 20, 1876, one week after her menstrual period. Drs. Cheever, Thorndike, Homans, Fifield, Cowles, and a few others were present and rendered valuable assistance.

The incision was about four inches in length. The tumor was punctured with a large trocar, and about a pint of thick, greasy liquid evacuated with difficulty. Some adhesions on the right side having been broken up, the tumor was drawn out of the wound. The pedicle was small, two or three inches in length, and was secured with Wells's smallest clamp. The wound was closed, as in the first case, with deep and superficial silk sutures, and dressed with dry lint, cotton batting, adhesive straps, and over all a flannel bandage. The patient was immediately placed in a warm bed. The operation lasted about forty minutes.

The tumor was five or six inches in diameter, and weighed about four pounds. In the largest cyst was found a ball of hair the size of a hen's egg, which explained the difficulty experienced in emptying it. Attached to the inner surface of this cyst was a small, round, fatty tumor, nearly two inches in diameter, covered with a thick, hairy integument, which exactly resembled the scalp. Some of the hairs growing upon this mass were seven or eight inches long, and firmly attached at their roots. In the centre of this fatty tumor was found a small cyst containing fluid much like that in the large one, but no hair. The walls of

the principal cyst were thick and firm, and contained several smaller ones, some of which were filled with hair and fatty matters, and others with ~~thin~~ thin, clear fluid. No bones nor nails were found.

The patient had no shock nor vomiting after the operation. She was kept moderately under the influence of opium for several days, and took beef tea, milk, soda water, and champagne after the first twenty-four hours. Her pulse was 120, and her temperature 102° on the third day, but both were normal on the sixth day after the operation.

The clamp came away in just two weeks, and the bowels moved in ten days without much prostration. She was troubled very little with distention by gas in the intestines. The only complication in her convalescence was a pretty free suppuration along the track of the deep sutures.

She sat up the fourth week. In six weeks the wound was closed, and the patient was well. When discharged she wore, and was advised to always wear a firm, well-fitting abdominal bandage.

This makes the seventh ovariectomy performed in this hospital, but it is the first that has ever recovered. Some of the previous cases were very favorable for operative measures, and great pains were taken to protect them from all hospital influences, but they were invariably fatal. When the new buildings were completed it was thought justifiable to try the operation again under the improved hygienic condition of the institution, and the result is shown by the above case. So far as we know, this is the first time ovariectomy has been successful in any of the larger hospitals in this vicinity. Although the above-mentioned patient was isolated as much as possible from the other inmates, we attribute the favorable result largely to the admirable arrangements for heating, ventilating, and draining the new buildings.

The room occupied by our patient is a corner one on the second floor of the new, three-story, surgical pavilion. It has two windows, both double, and designed to be kept closed except in warm weather, and not to be used for purposes of ventilation. The floor area is sixteen by eleven feet, and the height is sixteen feet.

The fresh-air supply is admitted by an independent inlet from the outer air, and, passing over a coil of steam-pipe and only a short distance before entering the room, it has no communication with the air supply of any other room. Warm air enters through a large register near the ceiling, or another near the floor, as may be desirable, at the rate of about ten thousand cubic feet per hour. This is the result of a number of observations made by Dr. Cowles with Casella's air meter, and it may fairly be considered as indicating rather less than the average amount of fresh-air supply.

The ventilating outlets are of similar dimensions and locations to the inlets, so that the air of the room is undoubtedly changed at least three or

four times every hour. During all the time of this woman's confinement to this apartment the temperature was mild and even, and the room was free from draughts and odors, and most comfortable in every respect. If patients cannot, with certain precautions, recover from ovariotomy in the private rooms of our new buildings, which are all heated and ventilated as above described, it would seem hardly possible to construct suitable rooms for such operations in any large hospital. They are apparently far better adapted for these cases than most rooms found in private houses, which have hitherto been considered preferable for ovarian patients.

In closing this paper we may be allowed to say that the trustees and the superintendent of the City Hospital are to be congratulated on their great and earnest efforts to make the institution what it should be, to wit, well built, well drained, well ventilated, commodious, and convenient of administration.

VARICOCELE; ITS RATIONAL CURE.

BY G. W. COPELAND, M. D., BOSTON.

IN medical journals and hospital reports I frequently read of cases of varicocele treated by operative measures. Having had quite a number of these cases come under my observation, and believing that the so-called operations for "radical cure" are unsatisfactory in their results and altogether unjustifiable, I beg leave to submit these cases cured without operations.

CASE I. C. W., aged twenty-five, a medical student, had been a captain of cavalry in the Southern army; he was of spare build and nervous temperament. He had been troubled with varicocele on the left side during his army life. When I first met him the veins were nearly as large as a hen's egg; the testicle was small and the scrotum relaxed. It pained him so much and weighed upon his mind to such an extent that he consulted several surgeons and requested them to operate on him. This, however, they refused to do, recommending palliative treatment instead. Three years after this he wrote me that he was married and had a boy, that his varicocele was cured, and that he believed a large part if not all of the pain and dragging weight was imaginary. He concludes by saying, "The great danger is that a man will have the trouble worse in his *head* than in his testicle."

CASE II. J. C., aged twenty-four, when first seen had a large varicocele on the left side and a small one on the right. He had been kept in misery from the uneasiness and neuralgia in the organ. He feared a total destruction of the testicle from atrophy, and suffered continually from depression of spirits. About this time a bunion on his left foot

became inflamed. It grew so painful that he had to wear a slipper and use a crutch. Finally, it caused him so much distress and anxiety that he forgot his varicocele, threw away his bandage, and neglected his cold douche. The pain and dragging left the testicle and have never returned. He firmly believes that the disease *went into the bunion*.

CASE III. G. P., aged twenty-seven, stout and apparently robust, had an immense varicocele on the left side, with pain and dragging weight all the time; also neuralgic pains shooting along the penis. He was almost incapacitated for work, mental or physical, and was literally insane at times, his mind continually dwelling on his trouble.

Two years later, he reports himself entirely cured. He states that he contracted a gonorrhœa, which continued for nearly a year. When this latter took hold of him his former troubles sank into insignificance. The pain and uneasiness have never returned, his health is better, and he says the gonorrhœa cured him.

From these and similar cases I infer that varicocele can be practically cured by freeing the mind from the delusion that impotence, destruction of the testicle, and a host of ill effects will follow. There is no class of patients that require our sympathy more than those afflicted with such mental troubles. If we can only succeed by kind advice in diverting the mind from the disease, the appetite improves, the relaxed condition of the system assumes a healthier tone, the spermatic veins may become smaller, and the pain and dragging cease. As the condition in question is chiefly limited to young, unmarried men, we can do much by assuring our patients that the disease is at its height, and that the veins will gradually become smaller. Tonics, the use of the cold douche, and a suspensory bandage will aid in the cure.

RECENT PROGRESS IN MENTAL DISEASES.

BY THEODORE W. FISHER, M. D. HARV.

Cerebral Physiology. — We find in the cerebro-spinal system a series of centres of coöordination, increasing in complexity of function from below upwards, each having a sensory or receptive and a motor side, and each being more or less automatic. The most probable location of function is as follows: in the spinal cord simple reflex action, presiding over functions purely automatic; in the medulla compound functions of the same kind; in the pons and corpora quadrigemina coöordination of the locomotive apparatus, with tactile, visual, and labyrinthine impressions; in the cerebellum, equilibration; in the basal ganglia a great variety of acquired automatic actions, at times and to some extent conscious and voluntary, but still very largely independent. The corpora striata are interposed in the course of the ascending or sensory

fibres, and the optic thalami in the course of the descending or motor fibres.

As it now appears from the recent experiments of Ferrier¹ and others, in the cortex of the brain are to be found centres in which these lower functions are still further differentiated, coming into new relations with each other, and forming the basis of organized ideas. The centres demonstrated by Ferrier as existing in the brain of the monkey are located in the parietal and temporo-sphenoidal region, being bounded anteriorly and posteriorly by regions which give no appreciable response to electric stimulation. They are briefly as follows: (1.) Postero-parietal lobule; advance of the opposite hind limb. (2.) Upper parts of ascending frontal and parietal convolutions; complex movements of thigh, leg, and foot, as in touching the abdomen. (3.) Just below 2, in the ascending frontal; movements of the tail. (4.) Below 2, including both convolutions; retraction with adduction of opposite arm. (5.) Posterior part of superior frontal; extension of opposite arm and hand. Prehensile movements of fingers are situated in lower part of ascending parietal, but cannot be separately distinguished. (6.) Ascending frontal below 3; supination and flexion of fore-arm. (7.) Ascending frontal below 6; action of zygomatic. (8.) Below the last; elevation of ala of nose and upper lip. (9.) Junction of third and ascending frontal; opening of mouth and protrusion of tongue. (10.) Nearly the same location; retraction of tongue. These last two centres correspond to the usual seat of lesion in aphasia. (11.) Lower end of ascending parietal; retraction of opposite angle of the mouth. (12.) Posterior half of superior and middle frontal; eyes open widely, pupils dilate, and head turns to the opposite side. Attitude of attention. (13.) Anterior and posterior limbs of angular gyrus; the visual centre. (14.) Superior temporo-sphenoidal; centre of hearing. (15.) Lower and inner aspect of temporo-sphenoidal lobe; centre of smell. The centre of taste is evidently near by, but difficult to distinguish from that of smell. (16.) Hippocampal region; centre of touch. All the actions indicating these centres were crossed.

The occipital lobes, though giving no response to electric stimulation, are thought by Ferrier to contain the centres of organic sensation, which here become the basis of the various instincts, appetites, and emotions. Destructive lesions were followed in monkeys by loss of the sexual instinct and the sense of hunger. The difficulties of research in this direction are great, arising from the negative character of the symptoms and their subjective nature, with absence of the power of verbal expression in animals. It is necessary to appeal to clinical observation for confirmation of Ferrier's opinions.

The discovery of temperature centres is already announced as a se-

¹ Functions of the Brain. 1876.

quel to the experiments of Ferrier. Eulenberg says, referring to recent experiments by himself and Landois, "Superficial destruction by cutting away the cortex in the upper part of the frontal lobe in dogs results immediately in a considerable rise of temperature in the limbs of the opposite side."¹ He finds, on further experiment, that the rise in temperature always occurs in the muscle or limb corresponding to the motor centre destroyed. Uspensky ten years ago found a vaso-motor centre in the optic thalami, and in the light of recent researches we should expect to find it represented in the convolutions. Brown-Séquard has reported symptoms resembling those which occur on section of the sympathetic, following his experiments on the surface of the brain. It is probable that temperature, circulatory and secretory centres exist in the convolutions, but we should not expect to find them limited to the immediate neighborhood of the motor centres. Every emotion has its appropriate change of temperature. Vaso-motor and secretory phenomena wait on every emotional impression. The blush of shame, the pallor of rage, the palpitation which precedes public speaking in one unaccustomed to it, the dryness of the fauces in stage fright, the blanching of the hair from fear, and jaundice following sudden grief are but a few of many illustrations. The above centres, therefore, seem to be as nearly related to the emotional as to the motor region.

The anterior lobes are also irresponsive to electric stimulation, with the exception of 12, which Ferrier found to be a centre for the movements involved in the attitude of attention. Attention seems to consist in the power of inhibiting or holding in arrest the ideational impulse, which naturally tends toward immediate expression, and allowing it to find its way according to certain laws of association. Attention, or the inhibition of the motor expression of ideas, is at the basis of all the higher intellectual faculties. Common observation, as well as anatomical science, has with probable correctness regarded the anterior lobes as intimately related to the higher intellectual faculties, but the nature of this relation is now beginning to be better understood.

Ideas are sensori-motor themselves, being based on remembered sensations with their corresponding motor impulses, inhibited it may be, but essentially present. In man the faculty of speech allows of abstract thinking, but this is also based on sensori-motor impulses. Near the junction of the third and ascending frontal convolutions are centres in which are intimately associated impressions received at the sight and sound of words, and the movements necessary in speaking and writing. These centres are in relation with other centres where impressions from the things represented by words have been received and organized. Re-excitation of one of these centres spreads immediately to all, and results in some form of motor response unless the impulse is inhibited. In per-

¹ *Berliner klinische Wochenschrift*, No. 42, 1876.

sons able to read with facility the process in silent reading is nearly automatic, while in those imperfectly educated there is consciousness of a suppressed speech, which indeed sometimes reaches the lips. This process is an example of all ideation, except that in abstract thinking the impulse travels along certain accustomed routes of association, and the attention is fixed on revived words in the brain instead of on the written page. Neither are we conscious of the steps of this process, so automatic does it become by life-long habit. It is the most thoroughly automatic function of the brain, and we only take cognizance of certain successive stations, and instantly forget the intermediate steps. It is probable that thought in any definite manner without words is impossible.

Ideas, then, are based on revived impressions, sensory and motor, and are simply reexcitations of the same cells or centres which received the original impression; so that ideation resides wherever conscious revivable impressions have been received. And since the revived sensation or emotion and the corresponding word or other motor response may be and probably are often somewhat widely separated, the parts of a compound idea must depend on an intricate network of fibres for acting together. In the child, this registering and association of ideas, or parts of ideas, may be watched, although it goes on in a very rapid manner. A single impression and a single effort of will, as in learning a new word, may establish an organic nexus which will last its lifetime.

Insanity and Localization. — The recent progress in our knowledge of the localities of cerebral functions will prove of great service in the study of mental diseases. So, also, the phenomena of insanity cannot but tend to confirm and explain the existence and relations of the cerebral centres. Even now, at first sight, we can perceive certain important relations between the different forms of insanity and the various functions of different parts of the cortex as discovered by Ferrier. In idiocy, for instance, the anterior lobes are often deficient. Intellectual idiocy, when strictly congenital, is most frequently accompanied by imperfect development of the anterior lobes. This is best seen in the Aztec or bird-like type of idiocy. Griesinger says,¹ "These little beings are extremely lively, their movements sprightly and well coördinated; they are happy, easily excited, inquisitive, but very capricious, little capable of attention, and of weak intellect." He further mentions a man who had never been idiotic, who was moderately intelligent, and read a great deal, but who had never manifested any sexual desire. The posterior lobes in this case did not cover the cerebellum. There is antero-posterior shortening in most cases of idiocy, but it is usually at the expense of the anterior lobes, and the most common mental char-

¹ Mental Diseases, page 378.

acteristic is absence of attention, perception, memory, and power of speech. The motor and emotional functions, though defective, are less deeply impaired. A careful analysis of the mental condition and corresponding cerebral deficiency of idiots would be of great use, if measurements were made in a large number of cases. It is probable the wonderful powers of certain phenomenal children are due to an excessive and abnormal development of the related cerebral centres. The boy orator, Shannon, might perhaps exhibit some enlargement or increase of gray substance in the region of the speech centre.

The condition known as moral idiocy is compatible with considerable intellectual activity if not strength of mind. In these cases the child does not *look* idiotic, and the frontal regions may be quite normal in appearance. No observations have been made as to the posterior conformation of the skull, but it is probable that the insensibility to moral impressions, the absence of ordinary feeling, and the perversion of the natural instincts and appetites depend on some defect of the posterior portion of the brain.

The relations of epilepsy to the cerebral motor centres have been carefully studied by J. Hughlings Jackson, and many facts corroborative of Ferrier's views clinically observed. Cases of partial spasm are most instructive. He finds certain groups of muscles affected together, the convulsion resembling the effects of electric stimulation of some one of the motor centres of Ferrier. General convulsions result from a discharging lesion affecting the whole motor region. The insanity of epilepsy, in other words the mental symptoms, consist of unconsciousness at the time of the fit, with mental dullness or weakness, slight or extreme, transient or permanent, afterwards. The mania of epilepsy is a rather brief excitement after the fit, in which automatic acts of more or less complexity occur, generally of an impulsive, violent, or furious character. These acts are generally forgotten when the patient fully recovers, as they are done in a period of semi-consciousness. The lighter the fit the more complex and seemingly voluntary the conduct. The predominance of motor phenomena of an impulsive and violent nature, depending on the delirious ideas of a half-awakened sensorium, corresponds to what might be expected of disorder superficially affecting the motor region of the convolutions.

Choreic insanity is of a similar nature, and by inference has a similar location. Though the theory advanced by Kirkes fifteen years ago, and since supported by Hughlings Jackson,¹ is still in controversy, it no doubt contains a part of the truth, namely, that embolism is *one* cause of chorea. The embolic theory accounts for many cases, and reconciles many phenomena previously unexplained. The connection

¹ London Hospital Reports, 1864; Times and Gazette, March 6, 1869; British Medical Journal, December 23, 1876.

of chorea and rheumatism has long been observed. Cases are reported where unilateral chorea has supervened suddenly in patients with rheumatic cardiac disease. Every nerve centre is a centre of coördination, and may be the seat of lesion in some cases of chorea, but that the motor centres of the cortex are often at fault seems evident from the complex and voluntary nature of the movements implicated. The speech centre is very frequently involved. It is noticeable, too, that chorea as well as epilepsy is incident to that age in which the movements affected are less thoroughly organized than in adult life. Dr. Jackson asserts that partial spasm, at the beginning of general convulsions, attacks first those movements latest and least perfectly automatized.

The insanity which sometimes, though rarely, accompanies chorea is not an incoördination of ideas resembling in another sphere the insanity of the muscles. It consists in the cases I have seen rather in a general state of irritability, with occasional violent outbreaks of uncontrollable temper; a sort of impulsive nervous discharge in the emotional region. The comparative infrequency of insanity in chorea shows that the lesion is more strictly confined to the motor region than in epilepsy. The apparent partial dementia in recent cases seems to be due to inability to express ideas freely on account of disorder of speech; or perhaps also to want of power to fix the attention upon definite lines of thought in the midst of so much disturbance in the motor centres.

General paralysis of the insane seems to exert its first and deepest effects on the anterior and middle lobes, and here as well as in senile atrophy the shrinking of the convolutions is most marked. A sense of well-being is characteristic of this disease long after the motor symptoms are well advanced. The sexual appetite is increased at first, or perhaps the restraining power of the will over this function is diminished. The memory is lost early. Speech and the nicer voluntary manipulations are first affected. Violent outbreaks of excitement occur from the natural resentment of the patient to the opposition of friends. He feels well, does not realize his mental and physical infirmity, and has lost his control over the immediate and explosive expression of his emotional states.

The two grand divisions of insanity into mania and melancholia must be based upon some broad anatomico-pathological distinction. Emotional disturbance, and usually depression, precedes almost every case of mania when it does not persist as a more permanent symptom. This is what might be expected, since the receptive side of the brain would probably first feel the effect of disease, especially that arising out of morbid organic states. Melancholia is at first and often for a long time a purely emotional form, but as the idea of obtaining some kind of relief by action gains ground, the self-concentration gives place

to self-assertion ; there is a stimulation of the will, and an activity of the motor side of the mind. In this state suicidal and homicidal impulses may arise, or the delusions gradually formed to account for the patient's mental pain may lead to active delirium. There is a tendency in some temperaments for morbid impressions to run quickly into motor expression, and the affective stage being very brief the case is considered one of mania from the first. I have often noticed among the insane a large anterior development of the cranium associated with typical cases of mania, and in cases of persistent melancholia or chronic hysterical excitement a very broad development posteriorly. This no doubt has been observed by many independently of Bucknill and Tuke's statement.¹ Many and probably most cases of idiocy and insanity, however, do not depend on congenital deformity of the skull, but on disease or injury, arresting the development or affecting the functions of a well-formed brain.

Various forms of mental disease in both male and female are closely related to disorder of the sexual functions or disease of the sexual organs. If the sexual instinct is located in the occipital lobes, in common with other organic sensations, we should expect emotional forms of insanity to prevail in such cases. And this I think is usually the case. The emotional disturbance of puberty and the menstrual period show the relation in question. The mania of masturbation oftener consists in impulsive conduct as a relief to disordered emotion than in any intellectual aberration. The dementia of masturbation is at first loss of moral sense, and then insensibility to impressions generally. Puerperal mania, which is the severest form of this class, consists in most cases of emotional excitement or depression followed by a rather transient and changeable delirium. The fact that religious emotion and subsequent delusion are common in all these forms is corroborative of the above location. The intellectual acuteness in hysteria shows that the emotional centres are chiefly involved, and the fact that motor phenomena, such as spasm, paralysis, or catalepsy, occur quite independently of delusion seems to indicate that the most traveled route lies from sensation, through emotion to action, leaving intellect a little one side.

So-called phthisical mania is characterized by excitement, restlessness, hypersensitiveness, and irritability, with little aberration of intellect except self-deception as to the nature and extent of the pulmonary trouble. Disease of the lungs and heart seem to be associated with hyperæmic states of the brain. In phthisis, as well as in hysteria, there is an involvement of the temperature centres, probably at the cortex. The condition of a consumptive patient resembles a modified attack of chills and fever, with low temperature in the morning, a rise in the afternoon, and sweating at night. That these phenomena may be pro-

¹ On Insanity, page 411.

duced by superficial disease of the brain is shown in a case of my own, where the most regular and distinct series of chills, fever, and sweating occurred in cerebral hyperæmia induced by grief and prolonged watching; and also in a case recently reported by Dr. Nichols, of Cambridge, where chills and fever resulted from unsuspected meningitis. It is probable that many symptoms, sensory, motor, vaso-motor, trophic, and secretory, which have been attributed to disease affecting the subordinate centres must be referred to a higher source in the convolutions.

Though mania sometimes accompanies hyperæmia due to organic disease of the heart, it is more common to find functional derangement due to inhibition or irregular stimulation, accompanying purely emotional disorder. This is the case in hysteria, and especially so in hypochondriasis and melancholia. Fear and apprehension are peculiar to these states of mind, and dread of sudden death often excites such palpitation as almost to give real cause for anxiety. I recall the case of a man who died exhausted after two or three years' struggle with such attacks. Another man still lives after having summoned his family to numerous death-beds, though now a less dramatic invalid. Another after a briefer experience, often coming to my door at four o'clock in the morning to say that he was dying, finally acquired the delusion that he had been poisoned, and starved himself to death. Agoraphobia is of a similar nature. A lady patient of mine had for years asthma, dyspepsia, hemicrania, and palpitation of the heart, each disorder prevailing for a while and giving way to the next. She finally settled into a state of chronic agoraphobia, with a pulse constantly at 120. It seems likely that these and similar cases depend on a neurasthenia affecting chiefly the occipital lobes, and due to emotional or sexual excesses.

The intimate relation between disorders of the abdominal viscera and melancholia is well known. Depression and dyspepsia are twin sisters. Nervous exhaustion, constipation, disordered liver, dyspepsia, wakefulness, irritability, and depression constitute a train of symptoms which may be touched off at either end. It reads as well backwards as forwards, and if Ferrier is right the occipital lobes suffer in either case. Organic discomfort is immediately made evident by emotional disturbance; and disappointment, grief, and anxiety just as surely produce organic disorder. For a hundred cases confined within these limits there may be one in which the intellect becomes seriously affected.

Contrast with this form of mental disorder the delirium at once arising from large doses of alcohol. Here the cause of necessity affects the whole brain at once, and all its functions are deranged. In delirium tremens, mania a potu, and mania from chronic alcoholism, delusions, hallucinations, and great restlessness are common. In a fit of intoxication, loss of attention, affection of speech, disturbance of vision, and mo-

tor incoördination generally are coincident with the emotional excitement. All the functions seem at first stimulated under loss of the inhibitory or restraint power, but are soon abolished by complete narcotism.

Disorder purely intellectual from the first is rare, but I have recently had a patient whose affection was of this nature.¹ A gentleman, with full frontal development, by the way, had complained of frontal headache for some time, induced by too close attention to accounts during a hot season. After exposure to heat and fatigue in the middle of the day, he took a ride in the afternoon, appearing as well as usual, but speaking of his recent disagreeable experience. The next morning he left his hotel without eating or speaking to any one, and started on a tramp of one hundred and thirty miles, under the delusion that he was to meet a dead burglar who was to inform him where a great amount of money was buried. This delusion disappeared at the end of a week, as suddenly as it came. The patient could not remember how he acquired this delusion, as the first few hours after leaving the hotel were a blank. He looks back upon the whole experience as a nightmare or waking dream. He showed during the tramp, and in the letters he wrote quietly relating his new prospects, but little excitement, and conversed sensibly and appeared naturally to those with whom he came in contact. His most persistent physical symptom was a tight feeling in the frontal region, which indeed lasted for weeks after his mental recovery, and which was increased by letter-writing or attention to accounts. I think this case very significant of the localization of the functions affected. The motor centres were stimulated apparently from the intellectual side, and a delusion of very narrow range, due to hyperæmia of the anterior lobes, was carried out in action, with the least possible disturbance of the emotional centres.

These hints of localization drawn from a cursory view of a few forms of mental disease I am aware have been stated with too much confidence, from a desire to economize space as far as possible. The subject is new, and the questions involved can be determined only by patient study of symptoms in their bearing upon the results of continued experiment.

PROCEEDINGS OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

F. B. GREENOUGH, M. D., SECRETARY.

JANUARY 22, 1877. *Basilar Meningitis; Chronic Otorrhœa; Curious Fistula through the Mastoid.* — Dr. J. ORNE GREEN reported the case.

R. B., coal-heaver, aged twenty-four, entered the City Hospital on Decem-

¹ Delusion of a Week's Duration, induced by Heat Stroke. Read before the Boston Society for Medical Observation, December 4, 1876.

ber 13, 1876; the history was imperfect, and all that could be obtained was that the general health had been considered good, and that he had had an otorrhœa on the left side at times since he was a baby. Four days before entrance there was a chill followed by nausea and vomiting, and almost immediately by delirium, which had continued ever since. He was not rational after entering the hospital. Temperature 101.3° ; pulse 78° .

December 15th, ten A. M. The patient was transferred to me by Dr. Lyman. He was lying in a stupor from which he was easily aroused; he seemed to understand questions, although imperfectly, but his speech was unintelligible; on being asked the seat of pain he apparently tried to point to the head. Just in front of the left ear was an old sinus healed by a thin cicatrix, through which there was fluctuation of pus in small amount. Over the mastoid was a small fistulous opening through the skin, without œdema or swelling of the tissues; with the probe no bare bone could be felt. Meatus filled with thin purulent discharge. Parts about left ear very sensitive to pressure. Pupils equal and readily movable. One short chill this morning, and another at noon. Temperature 101.8° ; pulse 86. Tongue dry and coated. Four P. M. Had been violently delirious all day. Was etherized, and the whole mastoid exposed by a long incision through the periosteum, and a small carious fistula was found, nearly an inch from the opening in the skin, at the extreme upper and anterior part of the mastoid, apparently entering into or near the antrum mastoideum. The walls of this fistula were carious, and were removed with a gouge till healthy bone was reached, making an opening about one sixth of an inch in diameter into the interior of the bone. A considerable quantity of grumous material was syringed from the cavity. Examination of the meatus auditorius showed that the membrana tympani was destroyed and the tympanum in a state of chronic purulent inflammation. The healed sinus on the cheek was opened by simple pressure and a small amount of pus evacuated.

He was ordered an ice-bag to the head, douching of meatus and sinus with warm water every hour, and Dover's powder as necessary. At evening visit, temperature 100.6° ; pulse 103.

December 16th. Very much as yesterday before the operation; violently delirious, requiring a strait-jacket. Temperature 102.7° ; pulse 96. This morning water passed for the first time from sinus out of meatus, washing out much inspissated pus. Evening, temperature 104.3° ; pulse 132.

December 17th. Less delirium, but more stupor. Congestion of conjunctiva of right eye, and right pupil contracted and fixed. About five P. M. seemed to be moribund, but revived under stimulants. In the morning, temperature 100.3° ; pulse 138. Evening, temperature 103° ; pulse 150.

December 18th. Greater stupor. Complete paralysis of right facial; apparently partial hemiplegia of right side; conjunctiva of right eye more congested; pupil closely contracted and whole eyeball anaesthetic. Temperature 101.2° ; pulse 144. Evening, temperature 102.6° ; pulse 144. Became gradually comatose through the night, and died at eight A. M. No autopsy could be obtained.

The diagnosis of meningitis could not be doubted; the tenderness about the ear, the old sinuses both in front and behind the ear, and the fistula through

the bone rendered caries of the deeper portions of the petrous bone extremely probable, although it was impossible to find it with the probe. The object of the operation was to establish a counter-opening into the tympanum, by means of which any confined pus could be syringed out of the meatus, and in this case, as in several others which I have seen, it was only after repeated douching for a day or two that the inspissated pus in the tympanum was finally washed out and a communication established between the meatus and the wound. The position of the fistula in the bone was in this case different from the usual one. Instead of being in the mastoid proper where the walls of the bone are thin and easily perforated, it was in the extreme upper and anterior part of the mastoid, just a little above and behind the auditory meatus and immediately below the root of the zygoma, the anatomical landmark in operating which defines the upper wall of the petrous bone. An opening through the bone at this point enters the upper mastoid cells just beyond the antrum.

On a skull in my possession, just at the point at which the fistula existed in this case, is quite a large foramen, which enters the upper mastoid cells and probably serves, like many of the other small foramina of the mastoid, for the passage of a vein. In the few other temporal bones which I have examined, this spot is always occupied either by one foramen of good size or by a number of minute foramina grouped together. The bone around this spot is the most dense of any portion of the mastoid, and it is difficult to account for the existence of the fistula here, except on the theory that the inflammation extended along a vein or veins from the inflamed antrum mastoideum, and so produced a caries of the foramen through which the vein passed. The bone around the fistula in this case, after the caries had been removed, was noticed to be very white and dense, and at the time I thought that I had to deal with an hyperostosis of the mastoid cells, but on examining the natural structure of the bone I am now satisfied that I was mistaken, and it merely had an opening through the very dense portion of the bone.

Dr. Green showed a preparation of a temporal bone, with a bristle in the small foramen, which he spoke of as being pretty constant in the situation of the fistulous opening in the case reported.

Fatal Case of Cerebral Disease.—DR. MINOT read the following account of the case, which was kindly furnished by Dr. Otis E. Hunt, of Newtonville, the physician in charge:—

“A. G., a close student, eighteen years of age, of fair health, was taken, December 31st, with a sudden attack of deafness, most apparent in left ear, with a change in the sound of his own voice while singing in church. The deafness largely passed away in a few hours, but continued in a slight degree to the time of his death. On January 1st, 2d, and 3d he attended school, as usual, but had some headache on the third day. On the morning of January 4th he awoke with severe headache confined to the right temporal and occipital regions. This one-sided headache continued to the time of coma, and was the only head symptom, except some singing in the left ear, which occurred on the 5th and disappeared on the 20th. On January 4th he also had numbness and coldness of the left hand and foot at several different times, lasting from ten to thirty minutes each time, and these parts were observed by his mother to

be much colder to the touch than the right hand and foot. January 5th and 6th he took short walks out-of-doors, but felt worse after the exercise each day. During the next four days there was no important change, but the patient felt weaker, and slept much. On the 11th his gait became uncertain, he seemed unable to guide himself, but could walk off briskly if let. Once or twice he came near falling. On the 13th and 14th he was troubled to find suitable words to express his thoughts, and at times his articulation was quite indistinct. He claimed to see unreal objects, and fell once while attempting to pass from one room to another. At this time his swallowing was noticed to be clumsy, though never very troublesome. He also, at this time, had an involuntary dejection in bed, and became very somnolent, sleeping twenty-three out of twenty-four hours. There was no paralysis, no vomiting, no intolerance of light or of sound, no inequality of the pupils, which were normal in size, and responded to light up to January 17th, when oscillation was first observed, and dilatation commenced and continued to the time of death. There was no chill. The temperature was normal till the 12th, when it rose to 99.5° F. in the axilla; was at 101° on the 13th; 102.6° on the 14th; 103° on the 15th; reaching 104° , its highest point, on the 19th, when it fell to 103° , where it remained.

"From January 5th, when I first saw him, to the 12th, the pulse ranged from 70 to 80, and was regular. On the 13th and 14th it was only 64 in the morning, but rose to 76 in the evening. After the latter date it rose each day several beats, being from 120 to 140 during the last two days. There was no intermittence. The urine was involuntary after the 18th to the time of death, which was on the 21st. He had coma from the 18th to his death, with abundant mucus in the throat and trachea, and some stertor; no convulsions.

"Since the above was written I have learned the following additional particulars: about the middle of December, A. was taken with mild 'rheumatism of the chest,' felt mostly on motion and full inspiration. He was in the house about one month on account of it, and was fully well by the 23d of December. No physician was called to him. This attack may make embolism more plausible as a cause."

DR. MINOT said he saw the patient January 15th. The pulse was then 76, slightly irregular, of good strength; respirations 24; temperature of left axilla, 101.4° F. The patient was drowsy, frequently falling asleep during the visit. Mind tolerably clear; he answered questions readily and intelligently, but the speech was decidedly affected, there being inability to use the right word in some cases. The tongue was clean, and protruded straight. The grasp of the two hands was equal and strong. The patient complained of pain in the right parietal and occipital regions. He had been working very hard, preparing for examination for Harvard College. Unfortunately there was no post-mortem examination, and the nature and situation of the lesion in this interesting case must remain uncertain.

Osseous Deposits in Choroid.—DR. WADSWORTH showed an eye, removed on account of sympathetic ophthalmia, which contained a bony formation in the choroid and a calcareous deposit in the lens. He gave the following his-

tory: The patient, fourteen years ago, while serving as a fireman on a steamer, got what he supposed to be a spark in his right eye, which excited a severe inflammation, lasting several weeks, and leaving the sight of that eye very much impaired. The eye, however, remained quiet for five or six years, when a blow from a potato roused fresh inflammatory manifestations, which resulted in total blindness. From that time, namely, eight or nine years ago, the eye has been irritable and tender, often being quite painful. In August last he presented himself at the City Hospital with sympathetic inflammation of the other (the left) eye, which dated back a week. The right eye, the one originally injured, was somewhat shrunken, the cornea irregular and considerably diminished in size; there was no anterior chamber, the pupil was closed and the iris disintegrated. There was circumscribed corneal congestion and tenderness on pressure. The left eye showed an active iritis, with several posterior synechiae, and the media were somewhat cloudy.

Enucleation of the right eye was advised, but only acceded to three or four days later, atropine being meanwhile employed locally. The operation was performed without an anæsthetic, the patient refusing to take ether. At the end of three or four weeks' treatment in a darkened room, by hot fomentations, constant use of atropine, etc., the posterior synechiae of the remaining eye were broken down, the inflammation subsided, and functions of the organ became apparently normal.

It is impossible to decide in this case with certainty whether the sympathetic inflammation of the other eye was excited by the irritation of the nerves from the bony growth in the choroid, by pressure from the calcareous degeneration in the lens, or as a result of contraction going on in the products of the old inflammation. The latter, however, seems the most probable, as the eye had been irritable, tender, and frequently painful from a time at which neither the bone in the choroid nor calcareous degeneration of the lens could have existed. This length of time, namely, eight or nine years, during which the irritability and tenderness of the eye continued before exciting sympathetic inflammation was quite long. But the chief point of interest in the case is found in the successful result as regards the second eye, such a result being very rare. Modern authors are unanimous in the opinion that when sympathetic inflammation is well established in an eye, there is very little chance of its escaping without serious damage, even enucleation of the other eye seldom appearing to have any beneficial effect. On the other hand there are a number of cases recorded in which the sympathetically affected eye has become totally blind, while the eye which excited the sympathetic disease has retained a useful amount of vision; this has led to the rule that sympathetic inflammation once in active course, the primarily diseased eye should not be removed provided tolerable vision in it still remains.

Small Renal Calculus. — DR. GREENOUGH showed the specimen and reported the case, which he considered interesting from the fact of so small a calculus having been found.

He was called to the patient, a gentleman somewhat under forty, on Tuesday, October 31st, at eight A. M., and found him in a violent paroxysm of pain. The perspiration was pouring from his forehead, and he was evidently suffer-

ing most intensely. The pain was confined to the left hypochondrium, just below the ribs, and did not extend upwards or downwards. The account he gave was that he got up to urinate, and having done so, he raised his left leg to get into bed again, and was suddenly seized with the pain in the region mentioned. On examination the abdomen was found natural, not distended, and nothing unusual could be discovered. There was no contraction of the cremaster muscle, the scrotum being, if anything, rather more relaxed than usual. A quarter of a grain of morphine was given subcutaneously, followed by gradual, but perfect relief. A bottle of the urine last passed was taken, and on examination several crystals of oxalate of lime and uric acid were found, as well as blood corpuscles.

On visiting him in the afternoon, it appeared that he had had, at about eleven A. M., a second paroxysm which was relieved by a physician in the vicinity by the same amount of morphine hyperdermically administered. From that time until the afternoon of the third day he was comfortable, only feeling somewhat "sore;" then he had another attack, but much less severe. On the fifth day he found the specimen shown in his pot after passing his water. It was quite small, about the size of a No. 6 shot, weighing one and one fourth grains, one diameter being somewhat longer than the other, covered with little rough spiculae, and consisting of oxalate of lime. At one point there was evidence of fracture, as though a small piece had been broken off, and Dr. Greenough supposed this to explain the attack on the third day.

The amount of pain produced by so small a body was of interest, as also the complete relief given by a moderate dose of morphine subcutaneously. Dr. Greenough thought that this must be due to the relaxing effect of the drug on the ureter in part, as well by its direct action in deadening pain, and such being the case the use of subcutaneous injections during the passage of calculi was more than simply palliative. If the calculus had been in the right instead of in the left kidney, it would have been likely to have been considered a case of biliary calculus on account of the local character of the pain. The patient has had no return, and when last examined his urine was free from oxalate of lime.

DR. JACKSON said that in several cases that had come under his observation, quite small calculi had produced an amount of pain altogether disproportionate to their size.

DR. WARE spoke of a case where a calculus not more than a third of the size of the one shown had caused such suffering as to make it necessary to keep the patient under the effects of ether from six A. M. to six P. M. on the following day. Biliary calculi, even when quite small, sometimes cause great pain. He referred to the case of a gentleman who had some suffering from a calculus still in the kidney, also when it passed through the ureter, but the suffering was most intense after it had entered the urethra, and it required surgical interference to remove it.

DR. BIGELOW said that the openings of the ureters into the bladder were small, almost probe-like. A calculus stopping there would cause a comparatively sudden dilation of the ureter by the accumulation of urine which would be painful. Moreover, these renal calculi are apt to be sharp and rough.

DR. WILLIAMS spoke of a case where two calculi had been passed. The patient was instructed to hold his water as long as possible, and pass it with force when he could not hold it any longer. He did so, and the calculus was ejected with force enough to make an audible noise when it struck the pot. The pain during the passage through the ureter was severe, but its urethral passage was not felt.

THE PHAKOMETER, FOR THE DETERMINATION OF THE FOCUS AND CENTRE OF SPECTACLE LENSES.¹

In this little pamphlet Dr. Snellen, of Utrecht, gives us a description of a new and ingenious instrument he has contrived for the above purpose. The accompanying wood-cut is copied from the one given by him.

The new numeration of spectacle lenses consequent on the introduction of the metric system is rapidly winning its way into favor in this country, and daily gaining adherents. The ophthalmic surgeon, adapting and working with metric glasses, abundantly realizes the truth of the claim made by Donders at Heidelberg in 1875, that this system would be found the most convenient, the quickest of application, and the most exact. A few months' experience with it brings a vivid sense of the difficulties and complexities of the old inch scale.

At first the glasses of the former trial-case had to be used, their metric values being ascertained by means of the table published by Snellen and appended to his "Optotypi," or test types. Subsequently, Roulot, Nacher, and Crétès, of Paris, began to furnish trial-cases of glasses, ground according to the new scale. Such glasses, in the possession of the surgeon, would serve as standards with which to compare the ordinary lenses of commerce.

For an accurate determination, however, we must have an accurate standard. This is particularly necessary at the present time, when the tools by which glasses are fashioned are undergoing a change of shape to correspond with the new required numbers. The old standards have to be discarded and new ones provided.

The strength of a convex standard lens can be found directly by allowing parallel rays, falling upon it along the line of its principal axis, to form an image on a screen placed behind it, the distance between the lens and the image being its focal length. In practice this method can be successfully employed only with the stronger lenses, the weaker forming a diffuse and faint image at a more or less considerable distance, rendering accuracy of measurement very difficult.

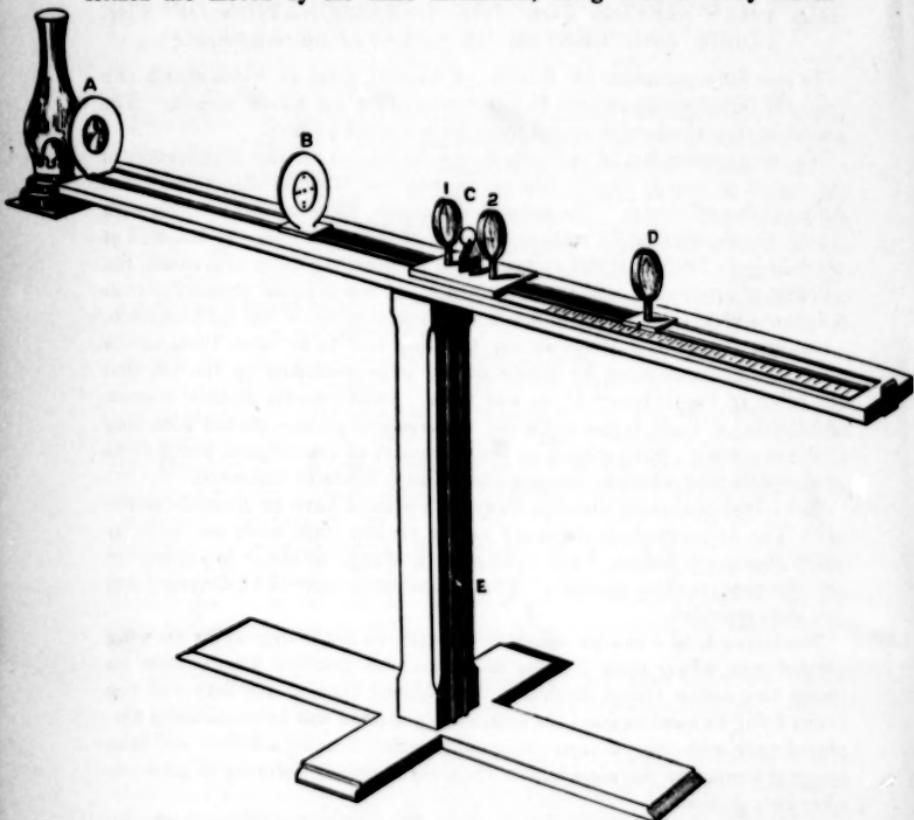
Donders has described a method of measuring the strength of a lens by means of the ophthalmometer. There are certain difficulties in the way of applying this method, not the least of which is the fact that an ophthalmometer is possessed by comparatively few.

Dr. Snellen has recently invented an instrument by means of which the metric strength of any convex lens, spherical or cylindrical, can be immediately and accurately read off, and at the same time its centre determined. It

¹ *De Phakometer, ter bepaling van Focus en Centrum van Brilglazen.* Door Dr. HERMAN SNELLEN.

is called a "phakometer," and is based on the principle that when an object and its image formed by a convex lens are of equal size, object and image are equidistant from the lens, and such distance is twice the focal length of the lens.

In describing the instrument I will, as far as possible, follow Dr. Snellen's own words. A reference to the wood-cut will render the explanation easy to follow. The luminous object (B) and the screen (D) on which the object is formed are moved by the same mechanism, being simultaneously moved



towards or made to recede from the lens, placed midway between them, at an equal rate. Each is affixed to the extremity of a thin, very flexible, steel ribbon, running along the track on which object and screen move, and descending side by side into the upright on which the track or flooring of the instrument is supported. Passing down this upright support they are secured each to the same movable button (E). Pushing the button upwards causes the distal extremities of the steel band to pass in opposite directions along the track; pulling it down brings them again nearly together in its centre, followed of course by the object and the screen.

The luminous object consists of a black metal screen pierced with several fine openings arranged in the form of a cross, and covered with ground glass. It is illumined by parallel rays proceeding from a lamp placed in the focus of a lens (A), and on a projecting shelf attached to the phakometer. The screen on which the image is formed consists of ground glass, and has on it black dots, corresponding accurately to the little openings on the screen but of course in reversed position.

The lens to be examined is held in a clip (C) consisting of two metallic rings placed in the centre of the apparatus, midway between the luminous object and the screen. One of these rings has an upright spur projecting from it, designed to point out the true centre of the lens under examination. An auxiliary lens of 2.75 dioptrics is placed on either side of the clip (represented by 1 and 2 on the diagram). The distance between these lenses is fifty millimeters.

The whole length of the apparatus is eighty-six centimeters, its height fifty-three centimeters. The luminous object and the screen can be separated 777.94 millimeters from each other. At this distance a sharp image of the luminous points is formed on the screen, and here the zero point of the scale begins. This scale is engraved on a strip of metal, running parallel to the track along which the screen moves. Its divisions correspond with the metric lenses from 0.25 up to twenty. A small pointer projects from the screen for the purpose of denoting the division of the scale opposite which it stops.

The lens the value of which is to be ascertained is placed in the central clip, and object and screen are moved from or brought toward each other until a sharp image of the luminous points is formed on the screen. The division of the scale opposite the point of arrest of the screen shows the value of the lens in dioptrics. If the luminous points do not exactly coincide with the dots on the screen, already described, the lens is improperly centred, and must be moved until correspondence is secured. The true centre of the lens is then indicated by the pointer attached to the clip.

The values of cylindrical lenses can easily be found in like manner, lines instead of points being formed on the screen. Approximate determinations of concave spherical and cylindrical lenses can also be made by combining them with stronger convex glasses. Lenses with one face spherical and one cylindrical can be analyzed easily and with considerable correctness. Absolute accuracy can however only be predicated of symmetrical biconvex lenses for which the scale is meant. For these the instrument will be found correct within 0.05 of a dioptric, a lens having a focal length of twenty meters.

The advantages of the phakometer may be briefly summarized: First and foremost it establishes the accuracy or want of accuracy of our new test lenses. Further, it enables us to convert our former inch glasses into dioptrics, tells us what dioptric a patient is wearing, and informs us whether the optician has furnished the glass designated in our prescription; all this more rapidly, easily, and correctly than by the old method of comparison. Finally, we discover whether glasses are properly centred.

In connection with this account of the instrument I have been urged to publish the results of my examination of Nachet's trial-case of metric glasses,

and to give the errors I found. These measurements were made with the utmost care, and repeated several times.

SPHERICAL.

| No. of Dioptric. | Error. | No. of Dioptric. | Error. |
|------------------|--------|------------------|--------|
| 0.25 | 0 | 5.50 | 0 |
| 0.50 | 0 | 6 | 0 |
| 0.75 | 0 | 7 | 0 |
| 1 | 0 | 8 | 0 |
| 1.25 | 0 | 9 | 0 |
| 1.50 | 0 | 10 | +0.15 |
| 1.75 | 0 | | |
| 2 | 0 | 11 | 0 |
| 2.25 | 0 | 12 | 0 |
| 2.50 | 0 | 13 | 0 |
| 2.75 | -0.05 | 14 | 0 |
| 3 | 0 | 15 | 0 |
| 3.50 | 0 | 16 | -0.27 |
| 4 | 0 | 18 | -0.22 |
| 4.50 | 0 | 20 | -0.12 |
| 5 | 0 | | |

CYLINDRICAL.

| No. of Dioptric. | Error. | No. of Dioptric. | Error. |
|------------------|--------|------------------|--------|
| 0.25 | 0 | 2.75 | 0 |
| 0.50 | 0 | 3 | 0 |
| 0.75 | 0 | 3.50 | +0.12 |
| 1 | +0.05 | 4 | 0 |
| 1.25 | +0.05 | 4.50 | +0.05 |
| 1.50 | +0.15 | 5 | 0 |
| 1.75 | +0.20 | 5.50 | 0 |
| 2 | +0.15 | 6 | 0 |
| 2.25 | 0 | 7 | +0.15 |
| 2.50 | +0.1 | | |

[NOTE. I am under much obligation to Dr. Charles H. Williams, of Boston, who was kind enough to lend me his phakometer while I was awaiting the arrival of my own.]

STATE SOCIETIES' WORK.

THE Transactions of the Illinois State Medical Society contain the work of the annual meeting at Urbana in May, 1876. They are chiefly a series of reports on various subjects connected with medicine and surgery, prepared by some of the most prominent physicians. The report on the progress of physiology we notice was made by Professor Sarah Hackett Stevenson, of Chicago. A movement was made having in view the establishment of a state board of health.

The Transactions of the Meeting of the Ohio State Medical Society, held at Put-In-Bay, are full of interest. Among the numerous papers we may mention that of Professor William B. Davis, of Cincinnati, On Human Vaccine, Vaccino-Syphilis, and Animal Vaccine, containing letters from Hebra, Sigmund, Zeissel, and others, on these subjects. It is an exceedingly valuable and

interesting communication. Dr. T. A. Reamy reports several cases of cancer of the neck of the uterus treated by the new method of cutting, scraping, burning, etc., with very satisfactory results. Indeed, he claims almost a radical cure for these cases. He does not hesitate to attack the disease even when far advanced. This paper is an ably written one.

The Wisconsin society has collected a large amount of clinical material in its report, including a number of curious and interesting cases. A perusal of these transactions enables us in a measure to appreciate the vast clinical resources of the country, which might be made available to every physician could they be accumulated from all quarters at one or two great centres and thence distributed in periodical form over the whole country. We have material for making a few first-class medical journals, which, owing to the immense size of the country, its varied climatic and social conditions, could offer an amount of interesting and instructive reading such as no European journal could furnish. Under the present system the fruits of a writer's labors are rarely seen beyond the limits of circulation of a local newspaper.

The Medical Society of Virginia has acted wisely in incorporating its transactions with the January number of the *Virginia Medical Monthly*. The Massachusetts Medical Society has adopted a similar policy for a number of years. This is a step in the right direction, but it would be of little advantage to stop here. The question of centralization in journalism is one which we hope will soon follow this period of literary inflation, which seems to have spread with all the vigor of a virulent epidemic over the Old World as well as the New. In spite of the almost certain failure which may be predicted of any new journalistic enterprise to-day, we constantly see additions to a list which has already outgrown the demand for reading matter. This condition of things is brought about, as we have already shown, by personal and selfish motives which alone stand in the way of an arrangement which would enable all parts of the country to be brought into free communication with each other. We commend this subject to the consideration of the association of editors as a fit subject for discussion at its meeting in Chicago this spring.

CORONERS.

THE sub-committee of the judiciary committee of the Massachusetts legislature, to whom was assigned that portion of the governor's address relating to the proposed changes in the present coroner system, has held two sessions during the past week. The legal aspects of the case were most ably presented by Theodore H. Tyndale, Esq., a lawyer of this city, whose admirable paper on the subject, recently read before the Department of Health of the American Social Science Association, has already appeared in this journal. Attorney-General Train and Mr. J. Lewis Stackpole also advocated the necessity of a change in the law as it now exists. The medical side of the question was presented by a committee of six of the councilors of the Massachusetts Medical Society, of which Dr. Cogswell, the president of the society, was the chairman. No opposition to the proposed changes was made except by three or four

of the coroners, to whom, of course, the proposed reform means a diminution in their annual income. It is a matter of regret that Coroner Treadwell should have seen fit to make the statements he did as to the cause of the present popular demand for a change in the coroner system, statements which he either knew were false at the time he made them, or which showed his utter ignorance of the demand for a reform, which was advocated in this journal as early as 1864, and which has for some years been called for by the profession. Several years ago a similar effort was made to change the coroner laws, but it was defeated, owing to the combined action of the coroners, with whom it was then as now largely a matter of dollars and cents. We were glad to see that the statement of Dr. Treadwell was at once contradicted by Mr. Pillsbury, a member of the committee, a contradiction which the card of Dr. Treadwell, subsequently printed in some of the daily papers, in no way controverts.

The last week has also placed on record the verdict of a coroner's jury that the deceased came to his death by "the hands of some person unknown," notwithstanding that the published facts of the case strongly pointed to suicide. In this case it will be remembered that the deceased held policies in at least two companies, and that the testimony presented at the recent investigation into the conduct of Coroner Newton showed the importance of the exercise of the greatest care in the conduct of all inquests in cases in which the question of life insurance is involved.

The special investigation of the charges preferred against Coroner Newton was postponed for a week, owing to the severe illness (certified to by Drs. J. B. Treadwell, Pattee, and Barrett) of the defendant. We shall therefore postpone any detailed account of the charges, which thus far appear to be proven, until the investigation is concluded. Meanwhile Coroner Newton has sent in his resignation, which the governor and council have very properly declined to take action upon until the evidence as to his gross unfitness for the position has been made public.

MEDICAL NOTES.

— The annual catalogue of Syracuse University, in New York, shows that the medical department has adopted this year the "graded" system of instruction. Since 1872 this system has been optional; it is now compulsory. An examination for admission is also required. Each year's course represents a full year's work, the two terms lasting from October to July. Examinations are held at the end of each year. We most heartily wish the faculty success in carrying out this plan. In striking contrast to this system we find, according to the *Syracuse University Herald*, that a young man twenty years of age, a student in the medical department, who could not have graduated at that school until June, 1878, by attending a course of lectures at a prominent New York school this winter has been able to obtain his diploma. "The graded system" of medical education adopted by two or three universities in this country is in our opinion the minimum which should be required for a good medical education. What sort of an education do the New York schools give, and what might they not be able to give under a proper system with their varied clinical advantages?

— Dr. Gurdon Buck, who died recently in New York, was born in 1807. After a thorough preliminary education he became a student of the late Dr. Thomas Cock, and graduated from the College of Physicians and Surgeons in 1830. He was afterwards an interne in the New York Hospital, whose new building was formally opened a few days since. He subsequently passed two years in study at the medical centres of Europe, and on his return he was appointed attending surgeon to the New York Hospital. He had also several other important hospital appointments, the latest being that to the Presbyterian Hospital. Dr. Buck was a Fellow of the Academy of Medicine. He was also member of the New York Pathological Society, of which he was at one time president, and of the county Medical Society, the State Medical Society, and the American Medical Association. He is perhaps best known for his method of treating fractures of the thigh by weight and pulley, the value of which has long been appreciated in this country and is now coming into vogue in Europe. His Contributions to Reparative Surgery, which we have but lately received, embodies the work done by him in this field during many years of labor, and is illustrative of his skill and perseverance in tedious and difficult cases. Dr. Buck was highly respected by the profession throughout the country. Two of his sons, Dr. Albert H. Buck and Dr. Francis D. Buck, are practicing physicians in New York.

LETTER FROM NEW YORK.

MESSRS. EDITORS,— I see by the papers that a new bill has been introduced into the state legislature to regulate the practice of medicine and to protect the people against quackery. The main features of the bill are as follows: I. It requires every person practicing medicine or surgery to record his name in full, place of residence, name of college or society granting him a diploma or license, together with the date of same, in a book kept for the purpose by the secretary of the Board of Health (if he lives in New York), or by the clerk of the county in which such practitioner resides, and that such books shall be open to the inspection of any one so desiring. II. It provides that every one, except graduates of a chartered medical school or licentiates of a chartered medical society, shall be required to obtain a certificate from the board of censors of one of the chartered medical societies in the State that he is qualified to practice medicine. III. The secretary of the board of censors of any chartered medical society may summon any one, not being a graduate of a chartered medical school or a licentiate of a chartered medical society, to appear before the censors for examination, etc. IV. It is declared a misdemeanor for any one to practice medicine or surgery in the State without a proper diploma or license, or with one illegally or fraudulently obtained, and that any one found guilty of such misdemeanor for the first offense shall be fined not less than two hundred nor more than three hundred dollars, and be imprisoned until such fine is paid, the fine to be not less than four nor more than six hundred dollars for any subsequent offense. All fines shall be paid into the treasury of the medical society making the complaint. The provisions of this bill are similar to those in the bills of 1872 and 1874, except in re-

gard to the fine and to whom it shall go. There is no question as to the urgent necessity of some law, especially in a city of the size and character of New York, to protect the public from adventurers in medicine. For the past year the censors of the county medical society have been trying to suppress irregular practitioners, under the law of 1874, and although something has been accomplished, yet the work is so great and the uncertainties of the laws are so many that it is asking too much of any society to undertake it. It seems as though it should be a matter to be attended to by the state authorities rather than to be left to the chartered societies.

Within the past three weeks the three medical colleges have held their annual commencement exercises, and if one may judge of their prosperity by the number of graduates, they seem to be in a flourishing condition. On the 20th of February the University Medical College held its thirty-sixth annual commencement, and gave diplomas to one hundred and fifty-seven students. Next came the commencement exercises of Bellevue Hospital Medical College, which were held on February 21st, being the sixteenth anniversary; one hundred and forty-seven students were graduated. The College of Physicians and Surgeons celebrated their seventieth annual commencement on the 1st of March, and graduated one hundred and eighteen students.

It is worthy of note that in their address before the graduating classes of the University and Bellevue, Bishop Quintard and Dr. McCosh both advocated a higher standard of medical education and a more strict demand for a classical training from those applying for admission into the medical schools. There is a feeling among the profession at large, and even among those connected with the colleges, that there should be a change in the mode of medical instruction, and that the schools should be placed upon a more sure financial basis. The support of the medical colleges, as well as the remuneration of the instructors, is dependent on the number of students. Such being the case, any move in the direction of more strict requirements, either in the terms of admission or graduation, would be found to reduce the income of the college making the change, and any united action of all the schools cannot be hoped for. An attempt was made, three years ago, among the friends of the College of Physicians and Surgeons, to raise a fund of two hundred and fifty thousand dollars, the income from which was to be expended in providing a laboratory for instruction in chemistry, physiology, etc., in connection with the college. According to the statement of the president of the alumni association, only sixteen thousand dollars have been obtained. It would also appear from the statement of the same gentleman that the present college building is scarcely large enough to carry on in a proper manner its course of instruction, and even if a sufficient fund could be raised, the income from which would be ample to provide the necessary apparatus, there is no room in the college that could be spared, and the prospects of any change in the location are very small.

The same statement in regard to an endowment fund will apply to the other colleges. Bellevue leases the building it occupies from the Commissioners of Charities and Correction; the university holds the title to its college building, which is, without doubt, the best in the city, and the Twenty-Third Street school controls its building, but it is too small, and is not adapted to the require-

ments of a medical school of the present day, having the number of students that it has.

It seems rather strange that while other institutions of learning have received ample contributions to their permanent funds, while hospitals, asylums, and homes are receiving legacies, the medical schools in New York seem to have been entirely forgotten. May not one reason be that the general public are apt to look upon them as private enterprises, and that their real needs and requirements have not been brought to the notice of those who are able and willing to give? All the schools have prize funds, but no permanent funds.

Quite a sensation was created a few weeks ago by the statement in the daily papers that four female inmates of the Epileptic Hospital on Blackwell's Island had died suddenly, either from poison or malaria. The buildings in which cases of this class are placed are situated at the upper part of the island. They are one-story pavilions without cellars, and are placed upon what was formerly a marsh filled in with garbage. That a hospital should be built on such ground is a disgrace to any community, and calls loudly for the creation of some board to oversee such institutions. An investigation by such a board into the sanitary condition and surroundings of other charitable institutions might be productive of much good.

New York has again been called to mourn the loss of one of its distinguished surgeons. On Tuesday, March 5th, Dr. Gurdon Buck passed away at the ripe age of seventy, having been in active practice for nearly half a century. He was born in the city in 1807, graduated from the College of Physicians and Surgeons in 1830. He then went abroad, and on his return began to practice his profession in New York. In 1838 he was appointed one of the surgeons to the New York Hospital, which position he held at the time of his death. He was chiefly known as a surgeon, and to this, his favorite branch, he brought all the skill of a thoroughly educated mind. He was noted for his sound judgment and extensive reading, added to an ardent love for his profession and a zealous regard for its advancement and honor. He was conscientious in the discharge of his duties, both to his patients and the profession at large. He hated quackery or any semblance of charlatanism. He was not a brilliant operator, but his results were equaled by no other surgeon in the city; his careful attention to every detail in the after-treatment of his cases contributed in no small degree to their success. As a hospital surgeon he was noted for the care he bestowed on those committed to his charge, spending many hours a day in the personal supervision of his cases. He was for a number of years surgeon to St. Luke's Hospital, and at the time of his death was one of the consulting surgeons to the Roosevelt. He was a frequent contributor to the medical journals. His writings have always been noted for their clearness and originality, and have always commanded the careful consideration of the profession. Of late years he has paid especial attention to plastic surgery, and his personal experience in this branch he has just published in a book, *Contributions to Reparative Surgery*. His death was not unlooked for, as it was well known that he had been suffering for some time from chronic disease of the kidneys. It is true of him that he has left no more honorable man behind him.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING MARCH 17, 1877.

| | Estimated Population, July 1, 1877. | Total Mortality for the Week. | Annual Death-Rate per 1000 for the Week. | Death-Rate for the Year 1876. |
|--------------|--|----------------------------------|---|----------------------------------|
| New York | 1,077,228 | 495 | 23.89 | 27.46 |
| Philadelphia | 850,856 | 308 | 18.81 | 22.88 |
| Brooklyn | 527,830 | 215 | 21.18 | 24.31 |
| Chicago | 420,000 | 145 | 17.95 | 20.41 |
| Boston | 363,940 | 152 | 21.72 | 23.39 |
| Providence | 103,000 | 27 | 13.63 | 18.34 |
| Worcester | 52,977 | 15 | 14.72 | 22.00 |
| Lowell | 53,678 | 32 | 30.99 | 22.21 |
| Cambridge | 51,572 | 18 | 18.15 | 20.54 |
| Fall River | 50,370 | 15 | 15.48 | 22.04 |
| Lawrence | 37,626 | | | 23.32 |
| Lynn | 34,524 | 15 | 22.59 | 21.87 |
| Springfield | 32,976 | 8 | 12.62 | 19.69 |
| Salem | 26,739 | 16 | 31.12 | 28.57 |

CITY HOSPITAL APPOINTMENTS. — Drs. J. B. Upham and F. E. Oliver have been appointed on the board of consulting physicians and surgeons in place of Drs. John Jeffries and C. E. Buckingham, deceased; Drs. Thomas Dwight and W. P. Bolles, surgeons to outpatients, and Drs. A. L. Mason and A. M. Sumner, physicians to medical outpatients.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The regular meeting will be held at the rooms, 36 Temple Place, on Saturday evening, March 31st, at seven and a half o'clock. The following papers and cases will be read: —

Dr. T. B. Curtis, The Metric System.

Dr. E. H. Bradford, The Treatment of Hip Disease.

Tea, etc., at nine o'clock.

BOOKS AND PAMPHLETS RECEIVED. — On some Conditions, Physical and Rational, in Effusions of the Pleura. By Beverley Robinson, M. D., Surgeon to the Manhattan Eye and Ear Hospital (Department of the Throat), one of the Physicians to the Charity Hospital, New York. (Reprinted from the Medical Record, Nos. 325 and 326.) New York: William Wood & Co. 1877.

First Annual Report of the State Board of Health of the State of Wisconsin, for the Year ending December 31, 1876.

Compulsory Medication of Prostitutes by the State. Republished from the Westminster Review, July, 1876, by the New York Committee for the Prevention of Licensed Prostitution, Mrs. Abby Hopper Gibbons, President, 111 West Forty-Fourth Street New York.

Report of the Managers of the State Asylum for the Insane at Morristown, N. J., October 31, 1876.

Acts for the Organization of the above.

An Atlas of Topographical Anatomy. By Wilhelm Braune. Translated by Edward Bellamy, F. R. C. S. Philadelphia: Lindsay & Blakiston. 1877. (From A. Williams & Co.)

Myelitis of the Anterior Horns. By E. C. Seguin, M. D. New York: G. P. Putnam's Sons. 1877. (From A. Williams & Co.)

Sixty-Third Annual Report of the Trustees of the Massachusetts General Hospital for 1876. Boston. 1877.